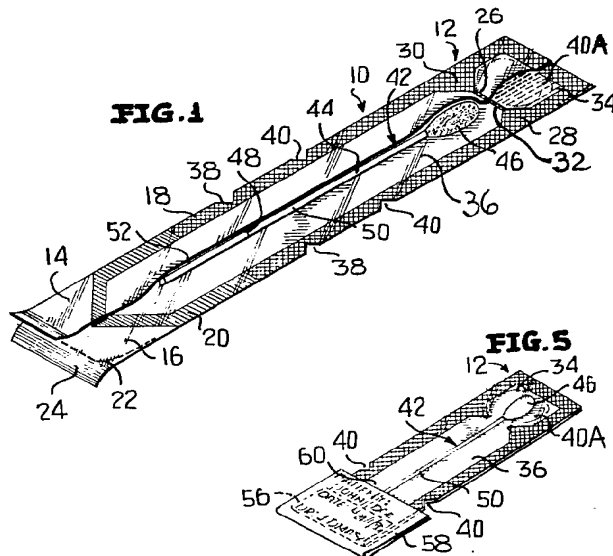


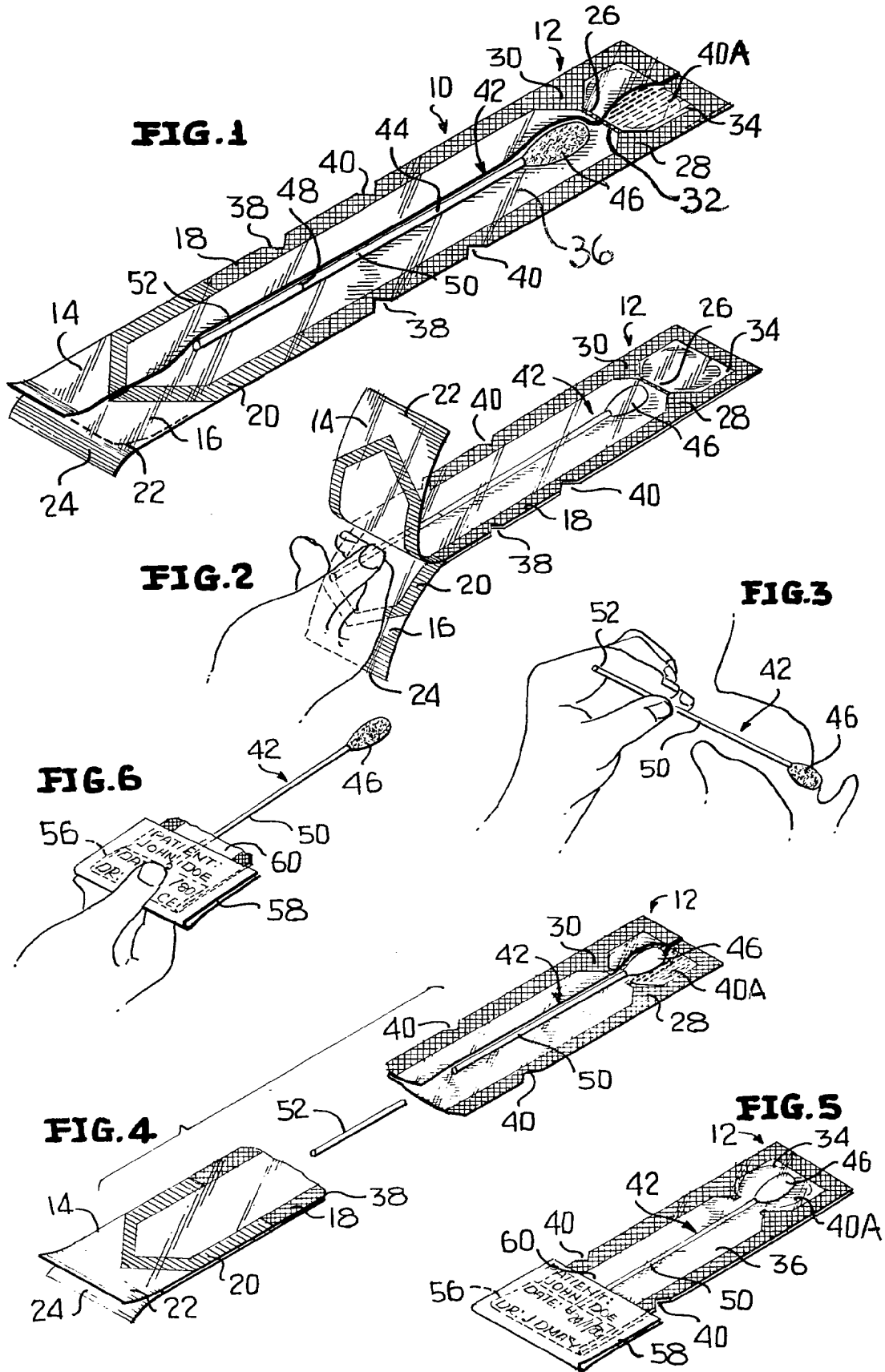
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(54) Culture-collecting kit and a method of taking a culture sample utilising it

(57) A culture-collecting kit comprises a sterile film package (12) with two compartments divided by a rupturable seal (26). The first compartment (34) contains a growth medium (40A). The second compartment (36) contains a

swab (42) having a collecting head (46) at the end of a stick (44) formed with a weakening (48). The compartment (36) has two pairs of transversely aligned notches (38-38; 40-40) and an end sealed by a peelable seal (20). In use, the seal (20) is unpeeled, the swab (42) is removed and a culture sample is taken. The package (12) is torn across the notches (38-38) and the swab (42) is re-inserted into the rest of the package so that the head (46) penetrates through the seal (26) into the growth medium (40A). The handled, contaminated stick portion is broken off at the weakening (48) and the package (12) is resealed by an identification label (58). The package (12) is now ready for transfer to a laboratory. There, the package (12) is opened by tearing it at the notches (40-40). The labelled portion of the package (12) can be used as a handle for gripping the stick (44) and the rest of the package is discarded to expose the head (46) for testing.





SPECIFICATION

Culture-collecting kit and a method of taking a culture sample utilising it

5 This invention relates in general to new and useful improvements in film packages, and more particularly but not exclusively, to a culture swab kit and to a method of taking a culture sample utilising it.

10 Currently known culture swab kits are relatively expensive in view of the package construction. A known culture swab kit includes a first tube having a rounded closed end and an open end and a second tube having a rounded closed end and an open end.

15 The second tube is telescoped over the open end of the first tube and is initially sealed relative thereto. A swab is carried by the second tube. The second tube is usable as a handle. The first tube has an end portion disposed beyond the swab wherein a growth medium jelly is stored. The jelly is separated from the swab by means of a piston which loosely fits within the first tube.

20 When the existing culture swab kit is utilised, the seal between the two tubes is broken and the second tube is utilised as a handle for the swab. After the culture has been obtained, the swab is again placed in the first tube and the second tube is telescoped over the open end of the first tube. The second tube is then pushed down on the first tube so that the swab engages the piston, forcing the piston against the jelly and causing the jelly to extrude around the piston and surrounding the swab.

30 It will be readily apparent that the provision of two separate tubes and the necessity of securing the swab to one of the tubes is quite an expensive operation. Also, the provision of the piston after the jelly has been disposed in the first tube is also expensive.

35 The present invention proposes a film package and in its preferred embodiment a culture swab kit, which eliminates or reduces the above-mentioned disadvantages and which may be formed from a plastics film having seals that may readily be machine-made, whereby to produce a film package, and more particularly, a culture swab kit which is relatively inexpensive compared with those now available.

40 The invention also aims to provide a film package which may be readily resealed after the swab has been utilised to obtain the desired culture and the film package, when resealed, remains impervious to further contamination.

45 In accordance with this invention, it is proposed that the film package be provided with a peelable seal which initially permits access to the culture swab, and the culture swab including a stick having a handle portion which is removable therefrom thereby after the culture has been obtained, the swab may be replaced in the film package and that portion thereof which has been handled may be removed. At the same time, the end portion of the original film package which was or might have been subject to contamination is removed.

50 Further in accordance with this invention, the shortened film package may be resealed utilising a

label and once the film package reaches a laboratory for testing, the film package may be torn again, with the newly sealed end portion being removable together with the swab for testing. The re-closed end portion is provided with a label which identifies the swab and this label stays with the swab as the culture carried thereby is being tested for identification purposes.

70 The invention will now be described in greater detail but purely by way of example with reference to the accompanying drawing, wherein:

Figure 1 is a perspective view, with parts broken away and shown in section, of a culture swab kit formed in accordance with this invention,

80 *Figure 2* is a schematic perspective view on a slightly reduced scale, of the culture swab kit of *Figure 1*, shown with the peelable seal thereof open so as to provide access to an end of the culture swab,

Figure 3 is a schematic perspective view showing the swab being utilised to obtain a culture,

85 *Figure 4* is an exploded perspective view with certain parts broken away and shown in section, illustrating the culture swab kit with the swab returned to the film package and the end thereof placed in a growth medium jelly, and with the contaminated end portion of the stick of the culture swab being removed together with an end portion of the film package,

Figure 5 is a perspective view of the re-closed film package, and

95 *Figure 6* is a schematic perspective view showing the re-closed film package ruptured along a second rupture line with the culture swab removed therefrom and the removed end portion of the film package including an identification label being attached to the swab for use as a handle.

100 Referring now to the drawing in detail, there is illustrated in *Figure 1* a culture swab kit generally designated 10 which includes a film package, generally designated 12.

105 The film package 12 is formed of two film sheet portions 14 and 16 which are primarily bonded together by a U-shaped permanent seal 18, which may be heat seal. The remainder of the seal between the film portions 14 and 16 is a generally chevron-shaped seal 20 which is a peelable seal and is thus different from the seal 18. The chevron-shaped seal 20 leaves two flaps 22, 24 which are readily graspable to peel the seal 20.

110 The film package 12 also includes a rupturable seal 26. The rupturable seal 26 is preferably formed as described in US-PS 3,608,709 but may be of any other suitable type of rupturable seal.

115 The rupturable seal 25 is relatively short and extends between two triangular portions 28, 30 of the U-shaped seal 18. The confronting apex portions of the triangular seal portions 28 and 30 define a guideway 32, as will be seen below.

120 The rupturable seal 26 divides the film package 12 into a relatively short, first compartment 34 and an elongated second compartment 36. The compartment 36 may be subdivided by tearing of the film package 12 transversely between either of two pairs of notches 38 and 40 formed in the side edges thereof and terminating within the seal 18.

A growth medium jelly 40A is placed within the first compartment 34. The second compartment 36 contains a culture swab, generally designated 42. The culture swab 42 includes an elongated stick 44 which is provided at one end thereof with a head 46 formed of a suitable culture-taking material, such as cotton. The stick 44, which is preferably a tube of plastics material, is provided with a weakening line 48 so as to divide the stick 44 into a main portion 50 and a removable handle portion 52.

It is to be understood that the culture swab kit 10 will be sterilised in any conventional manner so that the interior of the film package 12, the jelly 40A and the swab 42 will all be sterilised.

When the kit 10 is to be utilised, the film package 12 is opened by peeling the peelable seal 20 by grasping the flaps 22 and 24 and pulling them apart. As is best shown in Figure 2, once the film package 12 is initially opened, the handle portion 52 of the swab 42 can be readily grasped and the swab 42 removed from the film package 12.

Next, the swab, while being grasped by the handle portion 52, is utilised to obtain a culture, as is schematically shown in Figure 3. The swab is then returned to the film package 12 the head 46 is guided by the guideway 32 against the rupturable seal 26 and then sufficient pressure is applied to the stick 44 so that the head 46 ruptures the seal 26 and enters the jelly 40A. As this time the open end portion of the first compartment 36 may be removed by tearing the film package 12 along a line extending between the notches 38. At the same time, the handle portion 52 of the stick 44 may be removed by breaking it along the weakening line 48. This is clearly shown in Figure 4, the removed end portion of the film package being generally designated 54. The film package 12 is now ready for resealing.

The film package 12 is resealed by folding over the free end of the second compartment 36 to define a sealing flap 56, as is clearly shown in Figure 5. The sealing flap 56 is then held in place by the application of a label 58 which is preferably an identification label. The label 58 serves completely to seal the film package once again. The film package 12 is now ready for transportation to a laboratory to test the culture on the head 46 of the culture swab 42.

When the film package 12 is to be tested, it is torn once again transversely of the second compartment 36 along the line defined by the notches 40. As a result, a second end portion of the film package 12 is formed, this second end portion being designated 60. Once the end portion 60 has been torn from the remainder of the film package, it may be utilised as a handle for gripping the remaining portion 50 of the stick 44 to facilitate the removal of the culture swab 42 from the film package and placing the same in a suitable test device, such as a Petri dish. The film package portion 50 remains with the culture swab 42 so that the identification label 58 may be utilised to identify the culture sample being tested.

In order to allow an efficient manufacturing process to be used, the material used to make the film package 12 should be a heat-sealable thermoplastics material, preferably a cellulosic or polyethylene lamination or the like. However, the laminations may

include metal foils and the films 14 and 16 may be of many layers.

It should be readily apparent from the foregoing description of the usage of the culture swab kit that at no time is the culture subject to contamination.

Although only a preferred embodiment of the invention has been specifically illustrated and described in the form of a swab kit it is to be understood that the invention is capable of minor variations and of extension of use to other fields.

CLAIMS

1. A culture-collecting kit comprising a sterile film package, a transverse first rupturable seal dividing said package into a sealed first compartment containing a culture-taking swab which includes an elongated stick one end of which has a head with a culture-collecting means thereon disposed adjacent said first compartment; the end portion of the film package remote from said first compartment has a second seal for providing access to one end of said swab, transverse weakening means in said end portion for facilitating removal of the end portion from the remainder of said second compartment, said weakening means being so positioned between the said seals that said remainder is of a length less than the length of said swab, and means for resealing said remainder after shortening the stick to a length fully receivable in said remainder with said head in said growth medium.

2. A kit according to claim 1, wherein said film package has a second transverse weakening means in said second compartment along which said resealed package may be torn to re-open it and to facilitate removal of said swab for testing a culture thereon.

3. A kit according to claim 1 or 2, wherein an identification label is used to reseat said film package.

4. A kit according to claims 2 and 3, wherein the identification label is carried by the residue of said film package after being torn along the second weakening means and is retainable with said swab for identification purposes during culture testing.

5. A kit according to any preceding claim, wherein said first rupturable seal is disposed between two transverse permanent seal portions projecting into said package between said compartments, said transverse permanent seal portions defining a tapered guideway at the end of said second compartment adjacent said first compartment for guiding said swab head against said first rupturable transverse seal.

6. A kit according to any preceding claim, wherein said second seal is a peelable seal.

7. A culture-collecting kit comprising a sterile film package, a transverse first rupturable seal dividing said package into a first compartment containing a growth medium and a second compartment containing a culture-taking swab, said film package having a second rupturable seal at a free end thereof remote from said first compartment for providing access to one end of said swab, said swab including an elongated stick having a head carrying

means thereon adjacent said first compartment for taking a culture sample, said transverse first rupturable seal being between two transverse permanent seal portions projecting into said package between
5 said compartments said transverse permanent seal portions defining a tapered guideway at the end of said second compartment adjacent said first compartment for guiding said swab head against said rupturable transverse seal.

- 10 8. A method of taking a culture sample comprising providing a two-compartment film package including: a sealed first compartment containing a growth medium and a second compartment having therein a removable swab including an elongated
15 stick, and wherein said film package has a first seal between said compartments and a second seal at the end of the film package remote from said first compartment; opening said film package by rupturing said second seal to expose an end portion only of
20 said stick; removing said swab from said second compartment by grasping only said stick end portion; utilising said swab to obtain a culture sample; re-inserting said swab into said package, breaking off said stick end portion, removing an end portion
25 of said film package between the new end of the said stick and said second seal, and then resealing said film package.

9. A method according to claim 8, wherein said film package is resealed by folding over the new end
30 of said film package, and then applying a resealing member.

10. A method according to claim 8, wherein said film package is resealed by folding over a new end of said film package, and then applying a resealing
35 member in the form of a label.

11. A method according to any of claims 8 to 10, wherein the resealed film package is reopened at a test facility by tearing said film package across said second compartment to separate a free end portion
40 of said second compartment including said resealing member or label from the remainder of said resealed film package, and using said free end portion to handle said swab.

12. A method according to any of claims 8 to 11, wherein said swab is re-inserted into said package
45 by causing its head carrying the culture specimen to rupture said seal between said compartments and come to rest in the growth medium.

13. A culture-collecting kit substantially as herein
50 described with reference to and as shown in the accompanying drawing.

14. A method of taking a culture sample substantially as herein described with reference to and as shown in the accompanying drawings.